UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802- 4213

AUG 22 2003

In Reply Refer To:
SWR-00-SA-5924:HLB

Mr. Richard Welsh
Construction Engineer
U.S. Bureau of Reclamation
1140 West Wood Street
P.O. Box 988
Willows, California 95988-0988

Mr. Kenneth E. Hitch, P.E.
Chief, Planning Division
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Dear Messrs. Welsh and Hitch:

Enclosed is a revised Incidental Take Statement that addresses a June 18, 2003, request by the U.S. Bureau of Reclamation (Reclamation) to amend the biological opinion for the Glenn-Colusa Irrigation District's (GCID) Hamilton City Pumping Plant (HCPP) Fish Screen Improvement Project to increase the amount of incidental take authorized for the Fish Protection Evaluation and Monitoring Program (FPEMP). This letter also evaluates the effects of increasing the amount of incidental take on Federally listed endangered Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), threatened Central Valley spring-run Chinook salmon (*O. tshawytscha*), and threatened Central Valley steelhead (*O. mykiss*).

The biological opinion for the HCPP Fish Screen Improvement Project (GCID Biological Opinion) was issued by NOAA Fisheries on March 25, 1998, and amended on January 10, 2000. The GCID Biological Opinion requires Reclamation and the U.S. Army Corps of Engineers (Corps) to ensure that the fish screen facility is adequately monitored and evaluated by developing and implementing a FPEMP and determining the conditions under which the biological performance of the fish screen facility is optimized across a wide range of riverine and pumping conditions. For the biological evaluation of the screen facility, juvenile fall-run Chinook salmon from the Feather River Fish Hatchery or the Coleman National Fish Hatchery are marked, and released at different locations along the fish screen under a variety of pumping rates and river flows. A fyke net attached to a false-bottom livebox is used to recapture fish

released upstream. Fish screen injury and survival rates are calculated based on the relative recapture rates of test and control groups of fish. These survival experiments are conducted throughout the year and the survival rates of different size classes are measured over a range of pumping rates and river flows.

Listed anadromous salmonids can be captured in the fyke net when their downstream migration past the fish screen coincides with biological tests. This could occur year-round, with peak winter-run Chinook salmon migrations between August and November, and peak spring-run Chinook salmon and steelhead migrations between November and May. The amount of capture-related take authorized for the FPEMP was estimated from past fisheries studies at the site, and includes the following:

Species	# of Juveniles	# of Adults
Central Valley Steelhead	50	5
Central Valley spring-run Chinook salmon	50	1
Winter-run Chinook salmon	25	1

Lethal take of adult and juvenile fish is restricted to five percent of the authorized take identified above.

Since the original take levels were specified in 2000, there has been an increase in the abundance of listed anadromous fish in the upper Sacramento River (Figures 1 and 2). Additionally, recent developments to the FPEMP have improved the recapture efficiency of the fyke net, and the GCID Technical Oversight Committee (GCID TOC), which is comprised of representatives from Reclamation, GCID, the Corps, NOAA Fisheries, the U.S. Fish and Wildlife Service (FWS), and the California Department of Fish and Game (DFG), has recognized a need to increase the number of biological tests conducted during the migration periods of listed anadromous salmonids in order to fully evaluate overall survival rates during the pumping conditions and river flows that affect them most.

Because of these developments, the GCID TOC concluded that the existing amount of authorized incidental take is expected to limit the ability to fully implement the FPEMP and evaluate overall survival rates during important juvenile migration periods. Reclamation has, therefore, determined that in order to conduct the required FPEMP biological evaluations it is necessary to increase the amount of capture-related incidental take of listed juvenile salmonids for the next three years to levels listed below. No increase in the amount of incidental take of adult Chinook or steelhead is anticipated.

Species	# of Juveniles
Central Valley Steelhead	100
Central Valley spring-run Chinook salmon	5,000
Winter-run Chinook salmon	1,000

Reclamation also proposes several measures to minimize the extent and effect of increasing juvenile capture allowances. Lethal take of juvenile fish will be restricted to five percent of the amount of take identified above. To minimize stress, listed anadromous fish captured in the fyke net will be immediately released downstream of the livebox. Additionally, during the peak one-to two-day period when the majority of the fish released from the Coleman National Fish Hatchery are passing by the HCPP fish screens, the biological tests will be suspended to avoid capturing the large number fish that emigrate with this hatchery release and that meet the size criteria of listed salmonids. Also, regular communication and coordination with DFG's real-time spring-run Chinook salmon outmigration monitoring program on Mill and Deer Creeks will be maintained to avoid sampling when large numbers of spring-run Chinook salmon are anticipated to be emigrating from Sacramento River tributaries. Mill and Deer Creeks are located approximately 20 miles upstream and the juvenile monitoring programs in those creeks provide a strong indicator of the presence of spring-Chinook salmon near GCID.

The biological evaluation procedures at the fish screen may result in the capture, handling, harm, or killing of Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead for the three remaining years of the FPEMP. Fish are expected to be incidentally captured in the fyke net and livebox and may be harmed or killed if they become entangled in the net or wedged into creases of the livebox. Sampling protocols, and capture and handling procedures described in the FPEMP minimize the stress and mortality of captured fish. Adherence to these procedures during 2002 biological tests maintained capture-related mortalities at below five percent and there were fewer observations of capture-related injury. Although the biological tests of the FPEMP will result in the capture, handling, harm, or killing of listed anadromous fish, the results of this program will be used to determine measures to maximize fish passage conditions during the operation of the HCPP by reducing impingement, entrainment, and other impacts along the screen.

Because of the low juvenile injury and mortality rates during the 2002 biological evaluations, the recent increase in the number of listed anadromous winter- and spring-run Chinook salmon, and the importance of fully evaluating juvenile survival rates along the HCPP fish screen at a variety of pumping and river flow conditions, NOAA Fisheries recognizes that it is prudent to restrict the mortality levels of listed anadromous salmonids captured in the fyke net apparatus, but it is not necessary to limit the number of fish that may be captured since most fish will be released downstream unharmed.

Increasing the level of take for incidental capture, handling, and mortality is not expected to result in a significant change in the effect of the take at the scale of the Evolutionarily Significant Unit (ESU) because the abundance of adult and juvenile salmonids has increased since the take estimates were initially developed in 1998, and because the amount of take is small relative to the overall abundance of the species. Estimates of both winter- and spring-run Chinook salmon abundance show positive trends in adult escapement since 1998 (Figures 1 and 2). Higher adult escapement also has contributed to increased juvenile production. The FWS' Juvenile Production Index (JPI) measures the relative abundance of juvenile winter-run Chinook salmon

at the Red Bluff Diversion Dam, approximately 40 miles upstream from GCID. From 1998 to 2000, the JPI ranged from 1,366,161 to 4,617,473. By comparison, the JPI was 5,386,672 in 2001, and 8,114,273 in 2002. Although juvenile production data are not available for Central Valley spring-run Chinook salmon and Central Valley steelhead, recent increases in the adult abundance of these ESUs also would be expected to contribute to corresponding increases in juvenile abundance. Additionally, both the existing and proposed incidental take levels are expected to be low relative to juvenile abundance of the listed species. The existing incidental take levels for capture and handling of winter-run Chinook salmon represent less than 0.01 percent of the pre-2000 JPI, with the existing lethal take level representing approximately 0.0000007 percent of the pre-2000 JPI. Similarly, the proposed incidental take level for capture and handling represents less than 0.01 percent of the post-2000 JPI, with the proposed lethal take representing approximately 0.00046 percent of the post-2001 JPI. Likewise, NOAA Fisheries would expect that the proportion of juvenile spring-run Chinook salmon and steelhead that are captured, handled, or killed from the FPEMP to be low relative to the overall abundance of those species.

After reviewing the GCID Biological Opinion, the FPEMP, the results of the 2002 biological monitoring, and the best scientific and commercial data available regarding the current status of endangered Sacramento River winter-run Chinook salmon, threatened Central Valley spring-run Chinook salmon, and threatened Central Valley steelhead, NOAA Fisheries finds that increasing the amount of capture-related incidental take authorized for completing the biological evaluations at the HCPP fish screen does not change the conclusion of the GCID Biological Opinion that the HCPP Fish Screen Improvement Project is not likely to jeopardize the continued existence of the above listed species, and is not likely to destroy or adversely modify their designated critical habitat.

Enclosed is an updated Incidental Take Statement that amends the GCID Biological Opinion by increasing the amount of take authorized for the FPEMP. This Incidental Take Statement supercedes any previously issued Incidental Take Statements issued for the HCPP Fish Screen Improvement Project.

This concludes consultation on Reclamation's request to amend the GCID Biological Opinion for the HCPP Fish Screen Improvement Project. Reinitiation of formal consultation is required if (1) the amount or extent of taking specified in any incidental take statement is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the action is subsequently modified in a manner that causes an effect to the listed species that was not considered in the biological opinion or amendments, including this letter; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, formal consultation shall be reinitiated immediately.

If you have any questions regarding this correspondence or if NOAA Fisheries can provide further assistance on this project, please contact Mr. Howard Brown in our Sacramento Area Office, 650 Capitol Mall, Suite 8-300, Sacramento, CA 95814. Mr. Brown may be reached by telephone at (916) 930-3608 or by Fax at (916) 930-3629.

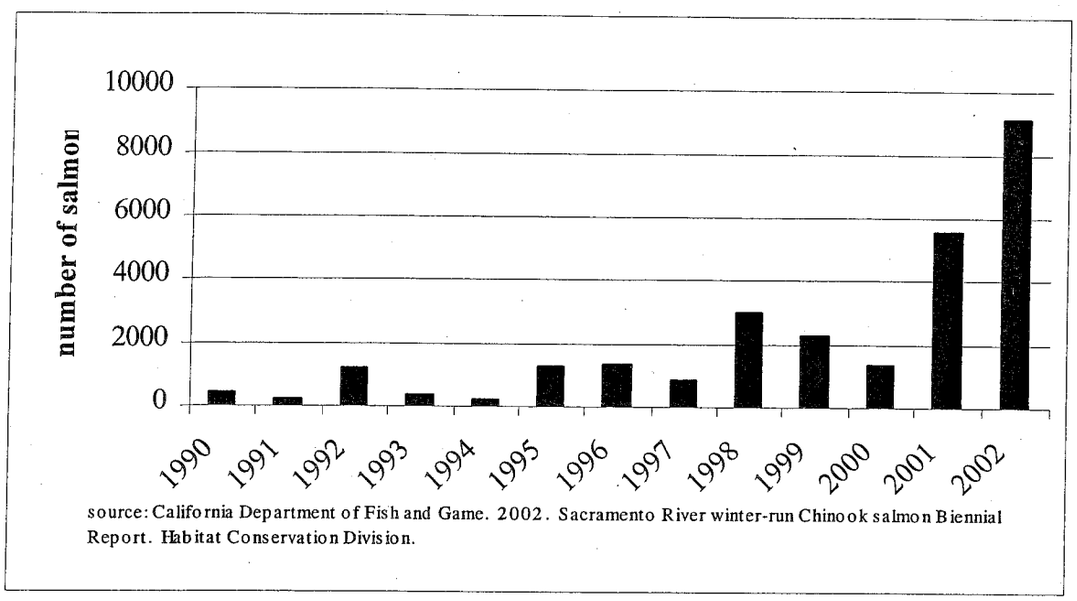
Sincerely,

Rodney R. McInnis
Acting Regional Administrator

Enclosure

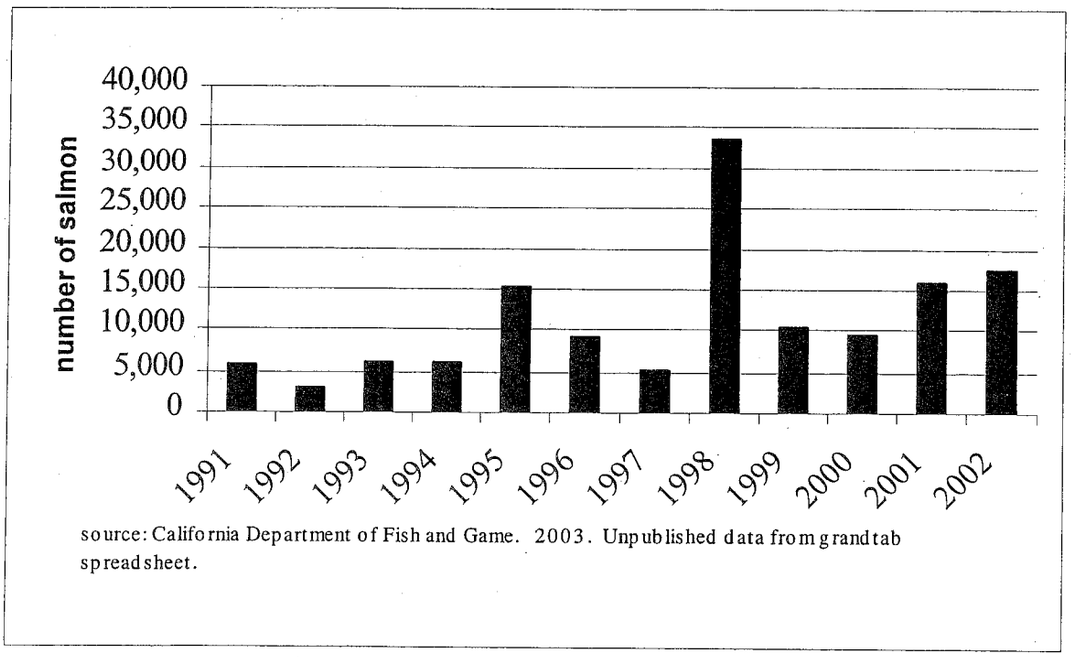
cc: NMFS-PRD, Long Beach, CA
Stephen A. Meyer, ASAC, NOAA Fisheries, Sacramento, CA
Rick Wantuck, NOAA Fisheries, Santa Rosa, CA
Gary Stern, NOAA Fisheries, Santa Rosa, CA
Lauren Carly, 1140 West Wood St. P.O. Box 988, Willows, CA 95988-0988
Rich Dixon, DFG, 1701 Nimbus Rd. Rancho Cordova, CA 95670
Justin Ly, FWS, 2800 Cottage Way, W-2605, Sacramento CA, 95825
Ben Pennock, GCID, P.O. Box 150, Willows, CA 95988
Mike Dietl, U.S. Army Corps of Engineers, 1325 J St., Sacramento, CA 95814-2922

Figure 1.- Winter-run Chinook salmon population estimates from Red Bluff Diversion Dam counts since 1990.



source: California Department of Fish and Game. 2002. Sacramento River winter-run Chinook salmon Biennial Report. Habitat Conservation Division.

Figure 2.- Spring-run Chinook salmon population estimates since 1990.



source: California Department of Fish and Game. 2003. Unpublished data from grandtab spreadsheet.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by NOAA Fisheries as an act which kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Corps and Reclamation so that they become binding conditions of any grant or permit, as appropriate, for the exemption in section 7(o)(2) to apply. Reclamation and the Corps have a continuing duty to regulate the activity covered by this incidental take statement. If Reclamation and the Corps (1) fail to assume and implement the terms and conditions or (2) fail to require a permittee contractor to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the permit, grant or contract, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Reclamation and the Corps must report the progress of the action and its impact on the species to NOAA Fisheries as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

This incidental take statement is applicable to all activities related to the HCPP Fish Screen Improvement Project described in the GCID Biological Opinion, and the July 2003 amendment. Unless modified, this incidental take statement does not cover activities that are not described and assessed within the GCID Biological Opinion, or the July 2003, amendment.

Amount or Extent of Take

Incidental take of Central Valley steelhead, Central Valley spring-run Chinook salmon, and Sacramento River winter-run Chinook salmon resulting from the project's activities is anticipated to be minimal because: (1) the in-water construction schedule will avoid peak emigration periods of listed salmon and steelhead smolts; (2) the number of rearing juvenile salmon and steelhead in the action area during the construction season will likely be low; (3) the proposed restriction of in-river construction activity (i.e., area of disturbance) to one-third or less of the total width of the Sacramento River at any given time will allow fish to avoid the impacted area; (4) the construction season avoids the primary upstream migration periods for adult spawners; (5) the fish screen is designed to meet or exceed fish screen standards established by NOAA Fisheries and the DFG for anadromous salmonids; (6) handling techniques proposed in the FPEMP are adequate to minimize stress and mortality of captures. Quantifying the level of incidental take associated with the proposed construction and maintenance activities will be

difficult to estimate because of the dimensions and variability of the Sacramento River system, the operational complexities of the GCID oxbow maintenance and pumping activities, and the timing of juvenile fish emigration.

Capture, injury, and death of listed salmonids associated with the FPEMP will occur at the fyke net and livebox assembly for a period of up to three years, beginning in July 2003, during the implementation of biological tests. Capture of all juvenile listed salmonids in the fyke net and live box is exempted (estimated to be approximately 100 Central Valley steelhead, 5,000 Central Valley spring-run Chinook salmon, and 1,000 winter-run Chinook salmon juveniles). Capture of 5 Central Valley steelhead, 1 winter-run Chinook salmon, and 1 Central Valley spring-run Chinook salmon is exempted. Lethal take of juvenile and adult fish is restricted to five percent of the number of juveniles and five percent of the number of adults of each listed species that are captured and handled.

Construction of the gradient facility will temporarily disrupt and damage approximately 13.4 acres of the Sacramento River streambed within the facility which extends along 1,000 feet of the channel bed, and roughly 2,500 feet along either bankline of the river. It is anticipated that approximately 3,081 linear feet, or about 0.71 acre, of SRA cover within designated critical habitat for winter-run Chinook salmon will be permanently impacted by bank stabilization activities. These riparian habitat and SRA cover losses adversely effect nearshore rearing and foraging habitat for juvenile Chinook salmon and steelhead. However, these losses are expected to be mitigated by the on-site re-vegetation plan and the acquisition of property at McIntosh Landing.

Effect of Take

NOAA Fisheries has determined that this level of anticipated take is not likely to result in jeopardy to the species considered in this opinion, or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

Pursuant to section 7(b)(4) of the ESA, the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize take of listed winter-run Chinook salmon, Central Valley spring-run Chinook salmon and Central Valley steelhead and to avoid adverse modification of designated critical habitat.

1. Reclamation and the Corps shall ensure that proposed mitigation for losses of riparian vegetation including SRA cover is fully successful and ensures no net loss of riparian habitat on the Sacramento River.

2. Reclamation and the Corps shall ensure that the new fish screen structure is operated and maintained in a manner consistent with the NOAA Fisheries-approved design.

3. Reclamation and the Corps shall ensure that the new fish screen facility is adequately monitored and evaluated to ensure optimum performance for fish passage.

4. Reclamation and the Corps shall ensure harassment, harm, or mortality of winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead occurring during the fisheries sampling activities associated with the Fish Protection Evaluation and Monitoring Program are minimized.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, Reclamation and the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

The RPMs, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the RPMs provided. The Federal action agency must immediately provide an explanation of the causes of the taking and review with NOAA Fisheries the need for possible modification of the RPMs.

1. Reclamation and the Corps shall ensure that proposed mitigation for losses of riparian vegetation including SRA cover is fully successful and ensures no net loss of riparian habitat on the Sacramento River.

   (a) Draft final plans for on-site riparian habitat and SRA cover mitigation shall be submitted to NOAA Fisheries by May 15, 2000.

   (b) Mitigation planting/restoration activities at McIntosh Landing (off-site) shall be completed by December 2002. On-site mitigation planting of riparian vegetation at the gradient facility shall be completed by December 2001.

   (c) Levee maintenance and bank protection activities shall follow the material guidelines described in Attachment 1 of the January 10, 2000, amended biological opinion for the HCPP Fish Screen Improvement Project.

2. Reclamation and the Corps shall ensure that the new fish screen structure is operated and maintained in a manner consistent with the NOAA Fisheries-approved design.

(a) Reclamation shall submit a final draft operations and maintenance manual for the new fish screen to NOAA Fisheries by March 31, 2000, for review and approval. Upon acceptance, NOAA Fisheries shall provide, in writing, final approval of the manual.

(b) The Corps shall develop an operations and maintenance manual for the gradient facility. A draft of this manual shall be submitted to NOAA Fisheries by December 1, 2000, for review and approval. Upon acceptance, NOAA Fisheries shall provide, in writing, final approval of the manual.

(c) GCID shall operate its pumping facility such that the screen approach velocity at the new fish screen never exceeds 0.33 feet per second.

(d) Prior to the initiation of annual dredging activities, Reclamation and the Corps shall ensure GCID provides a report to NOAA Fisheries that includes the results of pre-dredging surveys in the upper and lower oxbow channels, and the proposed dredging plan. The report must include all channel cross-section profiles, all existing channel hydraulic conditions and assess the need for dredging to maintain the minimum bypass flow and screen approach velocity criteria. The report must also include the proposed dredge spoils management plan. Within 15 days of submittal of the proposed dredge plan, NOAA Fisheries will review this information and provide comments to GCID, Reclamation, and the Corps.

(e) GCID shall ease all pumping operations at the HCPP when any portion of the fish screen structure is removed which allows unscreened water to pass between the oxbow and forebay for any and all periods exceeding 25 minutes during a 24-hour period. HCPP operations may resume when the fish screen structure has been fully re-assembled and is operational.

(f) Construction activities that must occur within the water or within the area below the ordinary high water line shall be limited to the actions that can adequately withstand high river flows without resulting in the inundation and entrainment of materials in flood flows, and not result in obstructed passage of salmonids. Construction of the gradient facility using the wet construction method must restrict the active construction area to one-third or less of the total Sacramento River channel width at any given time. Water quality monitoring will be conducted in compliance with State and

Federal regulatory permits to ensure waste discharge requirements for turbidity and settleable matter are not exceeded.

3. Reclamation and the Corps shall ensure that the new fish screen facility is adequately monitored and evaluated to ensure optimum performance for fish passage.

   (a) Reclamation and the Corps shall continue development of the FPEMP and ensure its full implementation. The FPEMP must adequately address the following under a reasonably wide range of riverine and pumping conditions:

      (i) Confirm the fish screen meets NOAA Fisheries criteria and the fish screen hydraulics perform as designed.

      (ii) Determine conditions under which the biological performance of the internal screen bypasses are optimized and develop operational criteria for the use of the bypass.

      (iii) Estimate fry and juvenile salmon survival rates in the oxbow channel.

      (iv) Determine if the gradient facility is performing as designed.

   (b) The final draft FPEMP shall be submitted to NOAA Fisheries by March 31, 2000, for review and approval. Upon acceptance, NOAA Fisheries shall provide, in writing, final approval of the FPEMP.

4. Reclamation and the Corps shall ensure harassment, harm, or mortality of winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead occurring during the fisheries sampling activities associated with the Fish Protection Evaluation and Monitoring Program are minimized.

   (a) Salmon and steelhead collected incidental to the biological studies must be promptly measured (fork length), recorded, and released into the Sacramento River.

Reporting Requirements

The final draft riparian vegetation and SRA mitigation plan, final operations and maintenance manual for the fish screen, final draft operations and maintenance manual for the gradient facility, proposed annual dredging plans, and final draft FPEMP shall be submitted to:

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and

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